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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

WANG, SHENGJUN

ART UNIT PAPER NUMBER

1617

DATE MAILED: 04/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/007,657	Applicant(s) CRANDALL ET AL.	
	Examiner Shengjun Wang	Art Unit 1617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,6,8,15,22,24-26,28 and 30-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,6,8,15,22,24-26,28 and 30-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114 was filed in this application after appeal to the Board of Patent Appeals and Interferences, but prior to a decision on the appeal. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on February 6, 2004 has been entered.

Claim Rejections 35 U.S.C. 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 2, 6, 8, 15, 22, 24-26, 28, 30-44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. The term "sustained" in claim 2, 26, 41, 43 is a relative term which renders the claim indefinite. The term "sustained" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The claims are indefinite as to the period of resistance provided by the method.

Double Patenting Rejection

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or

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improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 2, 6, 8, 15 and 22, 24, 26-28, 31-34, 41-44 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-37 of U.S. Patent No. 5,639,794 (IDS A19) in view of Sotome (IDS A8), Tsuei et al (US 5,589,194) '794 claims a method of controlling the growth of pathological organisms on susceptible plant wherein the pathological organisms including fungi, insect, arachnoids. The said method comprising administering (contacting plant part or plant surface) to said plant a composition comprising cinnamic compounds, such as coniferyl aldehyde, cinnamic aldehyde and cinnamic alcohol. The composition may further comprise surfactant, the composition is free of other antioxidants. See, particularly the claims.

'794 does not teach expressly that the method may be used for increasing the plant's resistance to pathological microorganism or the employment of microencapsulated composition. '794 also does not expressly teach that the said method will result in an increase of aromatic aldehyde or cinnamic acid in the treated plant.

2. Sotome teach that cinnamic aldehyde is known to be useful against soil borne pathogens, such as nematode or other plant microbial pathogens. See the abstract and examples 1, 3 and 4 in columns 5-10. Stability of cinnamic aldehyde is desired for maintaining the bioactivity. See,

column 2, lines 26-33. Tsuei et al. teach that microencapsulation of bioactive agents, such as antimicrobial agent, with beeswax or caruba wax is known to be useful for controlled release or protection of the active agent from premature reaction. See, particularly, column 2, line 63 bridging column 3, lines 20, column 4, lines 8-15, column 4, line 53 bridging column 5, line 12.

3. Therefore, it would have been prima facie obvious to a person of ordinary skill in the art, at the time the claimed invention was made, to employ the method in '224 for providing the plant with increased resistance to pathological microorganism or to further modify the method by employing beeswax microencapsulated cinnamic compounds.

A person of ordinary skill in the art would have been motivated to employ the method in '794 for providing the plant with increased resistance to pathological microorganism or to further modify the method by employing beeswax microencapsulated cinnamic compounds because cinnamic compounds are known to be similarly useful against pathogenic microorganism and beeswax microencapsulation of the cinnamic compounds are known to be useful for protection of the compound from premature reaction and for controlled release. Since the steps in the methods of the instant application and in '224 are substantially identical, the effect of the methods on the level of endogenous cinnamic compound in plant would have been reasonably expected to be identical.

Claims 43 and 44 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10 of U.S. Patent No. 5,676,958 (IDS A20) in view of Sotome (IDS A8), Tsuei et al (US 5,589,194). '958 claims a method of controlling pest population wherein the pest including arachnids. The said method comprising contacting the pest with a composition comprising cinnamic compounds, such as cinnamyl aldehyde, cinnamic

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aldehyde and cinnamic alcohol. The composition may further comprise surfactant, the composition is free of other antioxidants. See, particularly the claims.

'794 does not teach expressly that the method may be used for increasing the plant's resistance to the pest or the employment of microencapsulated composition.

Sotome teach that cinnamic aldehyde is known to be useful against soil borne pathogens, such as nematode or other plant microbial pathogens. See the abstract and examples 1, 3 and 4 in columns 5-10. Stability of cinnamic aldehyde is desired for maintaining the bioactivity. See, column 2, lines 26-33. Tsuei et al. teach that microencapsulation of bioactive agents, such as antimicrobial agent, with beeswax or caruba wax is known to be useful for controlled release or protection of the active agent from premature reaction. See, particularly, column 2, line 63 bridging column 3, lines 20, column 4, lines 8-15, column 4, line 53 bridging column 5, line 12.

4. Therefore, it would have been prima facie obvious to a person of ordinary skill in the art, at the time the claimed invention was made, to employ the method in '958 for providing the plant with increased resistance to pathological pest or to further modify the method by employing beeswax microencapsulated cinnamic compounds.

A person of ordinary skill in the art would have been motivated to employ the method in '794 for providing the plant with increased resistance to pathological pest or to further modify the method by employing beeswax microencapsulated cinnamic compounds because cinnamic compounds are known to be similarly useful against pathogenic pest and beeswax microencapsulation of the cinnamic compounds are known to be useful for protection the compound from premature reaction and for controlled release.

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Claims 2, 6, 8, 15 and 22, 24, 26-28, 31-34, 40-44 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-2 and 7-12 of U.S. Patent No. 5,839,224 (IDS A22) in view of Sotome (IDS A8), Tsuei et al (US 5,589,194) '224 claims a method of providing a susceptible plant with increased resistance to an insect or arachnid. The said method comprising administering (contacting plant part or plant surface) to said plant a composition comprising cinnamic compounds, such as cinnamic acid, cinnamic aldehyde and cinnamic alcohol. The composition may further comprise surfactant. See, particularly claims 1-2, and 7-12.

'224 does not teach expressly that the method may be used for increasing the plant's resistance to pathological microorganism or the employment of microencapsulated composition. '224 also does not expressly teach that the said method will result in an increase of aromatic aldehyde or cinnamic acid in the treated plant.

5. Sotome teach that cinnamic aldehyde is known to be useful against soil borne pathogens, such as nematode or other plant microbial pathogens. See the abstract and examples 1, 3 and 4 in columns 5-10. Stability of cinnamic aldehyde is desired for maintaining the bioactivity. See, column 2, lines 26-33. Tsuei et al. teach that microencapsulation of bioactive agents, such as antimicrobial agent, with beeswax or caruba wax is known to be useful for controlled release or protection of the active agent from premature reaction. See, particularly, column 2, line 63 bridging column 3, lines 20, column 4, lines 8-15, column 4, line 53 bridging column 5, line 12.

6. Therefore, it would have been prima facie obvious to a person of ordinary skill in the art, at the time the claimed the invention was made, to employ the method in '224 for providing the

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plant with increased resistance to pathological microorganism or to further modify the method by employing beeswax microencapsulated cinnamic compounds.

A person of ordinary skill in the art would have been motivated to employ the method in '224 for providing the plant with increased resistance to pathological microorganism or to further modify the method by employing beeswax microencapsulated cinnamic compounds because cinnamic compounds are known to be similarly useful against pathogenic microorganism and beeswax microencapsulation of the cinnamic compounds are known to be useful for protection the compound from premature reaction and for controlled release. Since the steps in the methods the instant application and in '224 are substantially identical, the effect of the methods on the level of endogenous cinnamic compound in plant would have been reasonably expected to be identical.

7. Claims 2, 6-8, 15, 25-28, and 30-32 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-16 of U.S. Patent No. 6,251,951.

8. '951 claims a method of protecting plants, including bell pepper, against microbial pathogens, comprising contact the plant with a composition comprising cinnamic aldehyde. The composition may further comprise saponin and the contacting may be realized by spraying. See, the claims. The claims in '951 differ from the claims herein only in scope. Specifically, Claims herein are generic to the claims in '951.

Claim Rejections 35 U.S.C. 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 2, 6, 15, 22, 24, 26, 31, 38, 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Soatome et al. (JP 57120501, IDS B8).

11. Soatome teaches a method of protection of crop from harmful insects, microorganism and pathogenic fungi comprising applying a emulsion of cinnamic aldehyde to the crop. See, the entire document. Note the composition does not require antioxidant. As to the limitation “sustained resistance” note the recitation has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Claim Rejections 35 U.S.C. – 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 2, 6-8, 15, 22-32, and 36, 38, 39, 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sotome (US 4,978,686, A1, IDS of Jan. 10, 2000) in view of, Tsuci et al.

(US 5,589,194, of record), Yamashita (US 5,696,094) and Frear (IDS C5), in further view of Saotome (IDS B8).

14. Sotome teach a method of protecting plant from the attack of insect pests, microorganism (including fungi) and pathogenic microbes by spraying or administering (irrigating) thereon a non-toxic and stable composition comprising cinnamic aldehyde and an antioxidant in the form of emulsion or powder. See the abstract and column 2, lines 64-68, and the claims. Similar composition may also be administered to the plant through roots. See, particularly, column 1, lines 46-57. Cinnamic aldehyde is particularly known against soil borne pathogens, such as nematodes, see, particularly, example 3 in columns 9-10. Stability of cinnamic aldehyde is desired for maintaining the bioactivity. See, column 2, lines 26-33.

15. Sotome does not teach expressly to employ beeswax microencapsulated cinnamic aldehyde in the composition, or without using antioxidant in the composition as herein claimed, or to employ surfactants, such as saponin, for the particularly plants herein claimed, or for the particularly plants herein.

However, Tsuei et al. teach that microencapsulation of bioactive agents, such as antimicrobial agent, with beeswax or carnuba wax is known to useful for controlled release or protection of the active agent from oxidation and other degradations. See, particularly, column 2, line 63 bridging column 3, lines 20, column 4, lines 8-15, column 4, line 53 bridging column 5, line 12. Yamashita teaches that nematodes are well-known soil-borne pathogens to many plants including tomato, grapes, etc. See, column 1, lines 16-42. Frear teaches that saponin is a well-known spray adjuvant. See, page 185, the last paragraph. Soatome teaches that antioxidant is not

required in cinnamic aldehyde composition for protecting crop, therefore indicating the antioxidant in Sotome's composition is for protect the cinnamic aldehyde from oxidation.

Therefore, it would have been prima facie obvious to a person of ordinary skill in the art, at the time the claimed the invention was made, to further modify the method of Sotome or Soatome by employing beeswax microencapsulated cinnamic aldehyde to the composition, or further employ saponin in the composition, or to employ the claimed method to plants such as grape, tomato etc, without the employment of antioxidant.

A person of ordinary skill in the art would have been motivated to further modify the method of Sotome by employing beeswax microencapsulated cinnamic aldehyde to the composition because beeswax microencapsulation of the cinnamic compounds are known to be useful for protecting the compound from oxidation, or other premature reaction. The employment of saponin in the composition for spray is obvious because saponin is a well-known spray adjuvant. Employ the cinnamic containing composition to plants such as grape, tomato is obvious because the composition is known to be useful against the plants' microbial pathogens. Further, employment of antioxidant as suggested by Sotome would have not been necessary since microencapsulation would protect the active ingredients from oxidation.

16. Claims 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sotome (US 4,978,686, A1, IDS of Jan. 10, 2000) in view of Tsuei et al. (US 5,589,194, of record), Yamashita (US 5,696,094) and Frear (IDS C5), Soatome (IDS B8), and in further view of Winston (U.S. 5,415,877).

17. Claim 33 and 34 are obvious over the cited references for reasons as discussed above, and in further view of Winston.

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18. Note previous cited references do not teach expressly the employment of sodium bicarbonate as agent against microbial pathogen. However, Winston teaches that salt such as sodium bicarbonate is a well-known fungicide ingredient. See, particularly, column 1, lines 34-37. It is prima facie obvious to combine two compositions each of which is taught in the prior art to be useful for same purpose in order to form third composition that is to be used for very the same purpose; idea of combining them flows logically from their having been individually taught in prior art; thus, the claimed invention which employs a combination of two known fungicides sets forth prima facie obvious subject matter. See In re Kerkhoven, 205 USPQ 1069.

19. Claims 35 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sotome (US 4,978,686, A1, IDS of Jan. 10, 2000) in view of Tsuei et al. (US 5,589,194, of record), Yamashita (US 5,696,094) and Frear (IDS C5), Soatome (IDS B8), in further view of Keen et al. (CAPLUS Abstract, AN 1979:471805).

20. Claims 35 and 37 are obvious over the cited references for reasons stated above, and in further view of Keen et al.

The previous cited references do not teach expressly the employment of the particular aldehyde herein. However, Keen et al. teaches that coniferyl aldehyde is known to be useful as antimicrobial agents, particularly for plant protection. See, the abstract. Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made, to employ coniferyl aldehyde in Sotome's method because coniferyl aldehyde is structurally similar to cinnamic aldehyde, and is known to be useful as antifungal agents.

Response to the Applicants' Arguments

Applicants' amendments and remarks submitted February 6, 2004 have been fully considered, but are not persuasive for reasons discussed below.

21. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., sustained for 8 weeks) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

22. Further, as discussed above the limitation of "sustained resistance" is vague; there is no clear limitation to excluding 30 days from "sustained" period. It is also noted that claims 2 and 26 would claim a subject matter essentially the same as disclosed in the comparison examples of Sotome, lacking material limitation that distinguish the claimed subject matter from those known in the art. See Sotome reference.

23. In response to applicant's argument that there is no suggestion to combine the references (Sotome and Tseui), the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the teaching, suggestion and motivation are found both in the reference and in the knowledge generally available to one of ordinary skill in the art. Particularly, Sotome teaches that cinnamic aldehyde is susceptible to oxidation. Tseui et al.

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teaches that microencapsulation provide protection to the components encapsulated from oxidation. It would have been obvious to employ microencapsulation for protecting cinnamic aldehyde from oxidation. With the employment of microencapsulation, the antioxidant would not be necessary in Sotome' s composition.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shengjun Wang, Ph.D. whose telephone number is (571)272-0632. The examiner can normally be reached on Monday-Friday from 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sreeni Padmanabhan, can be reached on (571)272-0629. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9302.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1600.

 **SHENGJUN WANG**
PRIMARY EXAMINER

Shengjun Wang

April 16, 2004